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ripped from his body, cut in pieces, broiled, and given to the young men under the belief that it would increase their courage; they drank his blood, thinking it would make them more wary, and finally his body was divided limb from limb, roasted or thrown into the seething pot, and hands and feet, arms and legs, head and trunk, were all stewed into a horrid mess, and eaten amidst yells, songs and dances.*

Much more might be added but enough has been said for our purpose, viz: to show that cannibalism being so common in other parts of America, there would be no improbability of its existence in Florida. We have entered more into details than we otherwise should because the subject of American cannibalism has not received the attention it deserves. Mr. Francis Parkman is almost the only one who has taken the trouble to call attention to the documentary evidence which exists bearing upon it, and I am largely indebted to his writings and to himself personally for references to original statements.

## THE HISTORY OF THE LOBSTER.

At length we have in a paper by Mr. S. I. Smith, assistant in the Sheffield Scientific School, New Haven, a careful history of the changes undergone by our native lobster, with valuable information on the season of breeding, and other facts of practical interest. The lobster, so important as an article of diet, is dying out from overfishing, and the time may come when it will have to be artificially raised. The information afforded by Mr. Smith is a result of the comprehensive views of Professor Baird, U. S. Commissioner of fisheries, who, besides his own laborious inquiries into the condition and prospects of our fisheries, has called to his aid many naturalists, who have by their special researches, with the aid of the vessels and apparatus afforded by government, thrown much light on the natural history of our fishes and their food.

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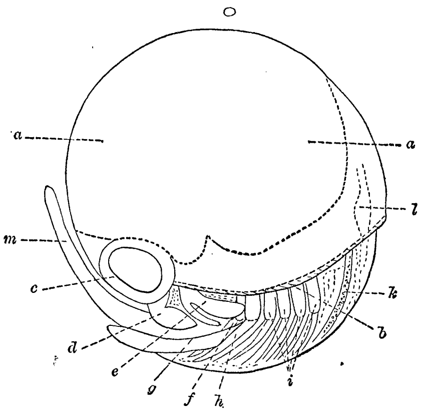
*For a justification of this picture of savagery the reader is referred to La Potherie, Hist. de l' Amerique. Paris, 1722, p. 23. Relation of Barthelemy de Vimout, 1642, p. 46. Relation of Jean Brebeuf, July 1636, p. 121. Relation of Francois Joseph Le Mercier. June, 1637, p. 118. Relation of Vimout, 1644, p. 41.

The following is an abstract (often in the author's own words) of Mr. Smith's paper, which appeared late during 1873, in the Transactions of the Connecticut Academy (vol. ii) and in part in the appendix to the report of the U. S. Fish Commissioner, lately issued. The season at which the female lobsters carry eggs varies much on different parts of the coast. Mr. Smith states that lobsters from New London and Stonington, Conn., are with eggs in April and May, while at Halifax he found them with eggs, in which the embryos were just beginning to develop, early in September. We have seen them in Salem with the embryos ready to hatch in the middle of May, and are told by Mr. J. H. Emerton, that they also breed here in November. It is not impossible that they breed at intervals throughout the year. This is an important point. At any rate there should be a close time on the coast of New England, during April and May, and October and November. Persons should also be fined heavily for selling lobsters with eggs attached.

Fig. 81.



The appearance of the embryo in the egg is represented by fig. 81.* He divides the larval condition of the lobster into three stages. The first, represented on plate 3, figs. A, B (D one of the cephalothoracic legs of the second pair, enlarged 20 diameters; *a*, exopodus; *b*, epipodus; *c*, branchial appendages), is a little under a third of an inch long, and was found early in July at

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* Embryo, some time before hatching, removed from the external envelope and shown in a side view, enlarged 20 diameters; *a*, *a*, dark green yolk mass still unabsorbed; *b*, lateral margin of the carapax marked with many dendritic spots of red pigment; *c*, eye, *d*, antennula; *e*, antenna; *f*, external maxilliped; *g*, great cheliped which forms the big claw of the adult; *h*, outer swimming branch or exopodus of the same; *i*, the four ambulatory legs with their exopodal branches; *k*, intestine; *l*, heart; *m*, bilobed tail seen edgewise.

Wood's Hole, Mass. In the second stage, the animal has increased in size, and rudimentary appendages have appeared upon the second to the fifth segments of the abdomen.

In the third stage* the animal is about half an inch long, and has begun to lose its Mysis-like (Schizopodal) appearance and to assume some of the features of the adult.

There are probably two succeeding stages before the adult form is attained, one is described by our author, while the first of the two he supposes to have existed, but has not yet discovered. After this the animal ceases to swim on the surface and late in summer seeks the bottom. They feed on the young of various animals, the larvæ of their crustacea, and, when much crowded in captivity, on one another, the stronger devouring the weaker. In the first stage of the adult form when the animal is about three-fifths of an inch long, it still differs from the adult so much that it would be regarded as a distinct genus. "In this stage, the young lobsters swim very rapidly by means of the abdominal legs, and dart backwards, when disturbed with the caudal appendages, frequently jumping out of the water in this way like shrimp which their movements in the water much resemble. They appear to live a large part of the time at the surface, as in the earlier stages, and were often seen swimming about among other surface animals. They were frequently taken from the 8th to the 28th of July, and very likely occur much later." Mr. Smith thinks the young pass through all the stages he describes in the course of a single season. Those in the last stage mentioned he believes had not been hatched from the eggs more than six weeks and very likely a shorter time. How long the young retain their free swimming habit after arriving at the lobster-like form, was not ascertained.

Specimens three inches in length have acquired nearly all the characters of the adult. The description of the different stages are very detailed, and accompanied by admirable figures.

"Of all the larval stages of other genera of crustacea of which I have seen figures or descriptions, there are none which are closely allied to the early stages of the lobster. Astacus, according to Rathke, leaves the egg in a form closely resembling the adult, the

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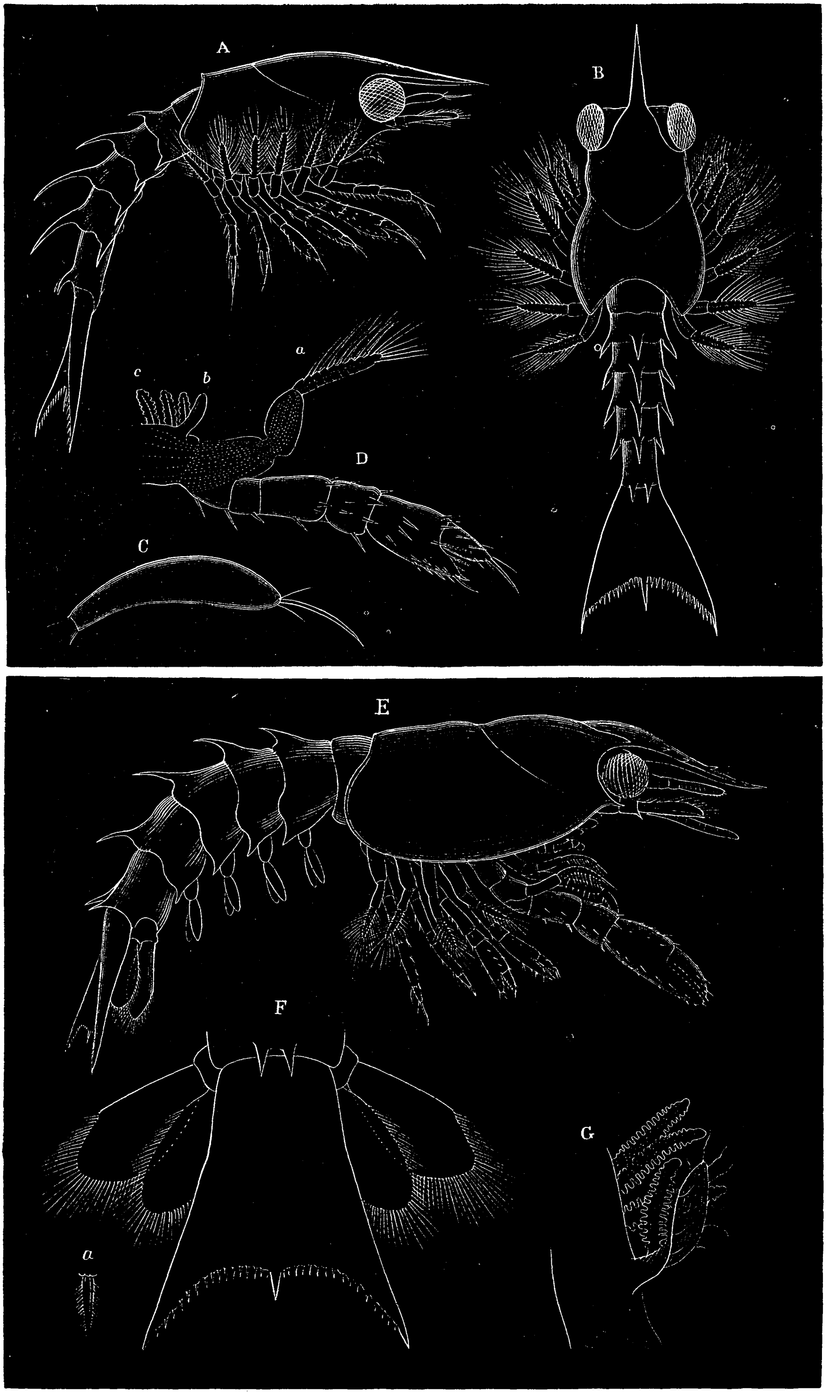
*(Pl. 3, fig. *E*, larva enlarged eight diameter. *F*, terminal portion of the abdomen seen from above, enlarged 15 diameters; *a*, one of the small spines of the posterior margin of the terminal segments, enlarged 75 diameters; *G*, basal portion of one of the cephalothoracic legs of the second pair, showing the epipodus and branchial appendages, enlarged 20 diameters.)



EARLY STAGES OF THE LOBSTER.

cephalothoracic legs having no exopodal branches and the abdominal legs being already developed. Of the early stages of the numerous other genera of Astacidea and Thalassinidea scarcely anything is known, but as far as is known, none of them appear to approach the larvæ of the lobster. Most of the species of Crangonidæ and Palæmonidæ (among the most typical of macrourans), of which the development is known, are hatched from the egg in the zoëa stage, in which the five posterior pairs of cephalothoracic appendages, or decapodal legs, are wholly wanting, as are also the abdominal legs, while the two anterior pairs of maxillipeds, or all of them, are developed into locomotive organs. In no period of their development do they have all the decapodal legs furnished with natatory exopodal branches. There are undoubtedly larval forms closely allied to those of Homarus in some of the groups of Macrourans, although they appear to be as yet unknown.

"Notwithstanding these larval forms of the lobster seem to have no close affinities with the known larvæ of other genera of macrourans, they do show in many characters a very remarkable and interesting approach to the adult Schizopoda, particularly to the Mysidæ. This appears to me to furnish additional evidence that the Schizopods are only degraded macrourans much more closely allied to the Sergestidæ than to the Squilloidea."

The mode of moulting of the lobster, does not seem to have been observed. We are indebted to Mr. William H. Silsbee for information and specimens regarding that of the adult lobster. He thinks it only moults once a year after having nearly attained its maturity at some period between May and November. On November 8th he saw one moult. It drew its body out of a rent in the carapace, or shell covering the front division of the body. The carapace splits from its hind edge as far as the base of the rostrum, or beak, where it is too solid to separate. The body is drawn out of the anterior part of the carapace. It has been a question how the creature could draw its big claw out through the small basal joints. The claw, soft and fleshy and very watery, is drawn out through the basal joint, without any split in the old crust. In moulting, the stomach, with the cartilaginous masses and bands and œsophagus, is cast off with the old integument. The length of the animal observed before moulting was six and a half inches; immediately after seven and a quarter, a sudden increase in length of three-quarters of an inch.—A. S. P.